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Zisler Capital Views

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What investors need to know about . . .

## Escaping Plato's Cave: Real Estate is a Poor Inflation Hedge

There is no correlation between deficits and inflation.

- Real estate has traditionally been a back-water, a dark cave located somewhere on the periphery of the global capital markets. (Sophisticated players still intone that real estate is all local.)
- Now is the time to think of real estate as a hybrid asset with multiple risk dimensions, sensitivity to unexpected inflation and interest rate shocks just being two of these dimensions.
- **Two articles of faith still prevail in real estate: (1) Real estate is a reliable inflation hedge; and (2) record high deficits naturally beget inflation. This thinking is not just outmoded and reactionary; it is wrong.**
- Inflation hurts real estate performance in over-supplied leasing markets since in-place leases are worth less as nominal interest rates rise with little, if any, offsetting increase in rental growth.
- When real estate is leveraged with debt, the change in equity value with respect to interest rates will depend on how closely the cash flow payments of the debt match the anticipated lease cash flows. Borrowers, who rely on debt of shorter duration, especially variable rate debt, are betting on interest rates, a dangerous game.
- So, if real estate is not a good inflation hedge, then why should investors embrace real estate? Should investors care about real estate? We say, "Absolutely, and now more than ever!"
- Real estate, public or private, debt or equity, is a potent diversifier in a multi-asset portfolio. Diversification increases portfolio efficiency. By efficient, we mean increasing returns without incurring greater risk, or, equivalently, reducing risk without sacrificing returns. There is a role for real estate in your portfolio, but not as an inflation hedge.



## Prologue

*The allegory of Plato's cave<sup>1</sup> is a story about knowledge, revelation, and enlightenment. Plato tells the story of prisoners who live their entire lives in a cave, chained and facing a blank wall. The prisoners watch shadows projected on the wall by figures passing in front of a fire behind them; they are unaware that they are watching shadows. The prisoners accept that the shadows are reality, not reflections of reality. A prisoner, who escapes the cave, is briefly blinded by the sun but acclimates, gains wisdom and eventually looks directly at the light. What would happen if he returned to the cave? How would he describe the new world to prisoners of a shadow world?*

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<sup>1</sup>Plato. **The Republic**. London: Penguin Classics. (First Edition), 1955.



## 1. Executive Summary

- As an asset sector, real estate generates income largely through leases and rents. The existing leases can be viewed as fixed cash flows whose valuation is similar to that of intermediate to long term bonds. The future cash flows beyond the lease expiration terms have equity-like characteristics. The leases, which account for most of the value of tenanted property, also account for most of the interest rate-related volatility of real estate.
- Real estate's inflation hedging performance has been neither strong nor constant over the real estate cycle. The correlation between inflation and property performance has fluctuated from slightly negative to moderately positive. That real estate did well during these early years has little to do with inflation and a great deal to do with the dynamics of the leasing market.
- Inflation hurts real estate performance in over-supplied leasing markets since in-place leases are worth less as nominal interest rates rise with little, if any, offsetting increase in rental growth. Interest rates may rise either in an expanding or contracting economy irrespective of the behavior of the leasing market. However, whether or not property returns are rising or falling, rising interest rates, by themselves, should decrease the value of in-place leases, provided that the spread of lease rates over Treasuries does not narrow.
- Real estate valuation will respond more promptly to interest rate and inflation shocks in the future due to the integration of the real estate property and capital markets. Real estate is not just "local". It is linked in many ways to the overall capital markets.
- Real estate may be financed with equity alone (unleveraged real estate) or with equity and debt. The value of unleveraged real estate and its relationship to interest rates is, as mentioned above, determined by the leases. When real estate is leveraged with debt, its change in value with respect to interest rates will depend on how closely the cash flow payments of the debt match the anticipated lease cash flows. If they roughly match, the leveraged real estate is less sensitive to changes in interest rates. We observe that the durations of assets and liabilities are often mismatched. Borrowers, who rely on debt of shorter duration, especially variable rate debt, are betting on interest rates, a game they cannot consistently play well.
- The value of real estate debt, like any fixed income instrument, is inversely related to interest rates. However, lower-rated and subordinated unsecured debt and commercial mortgage backed securities (CMBS) are laden with optionality. Because of their junior status, these subordinate positions are really a combination of a long position in low risk bonds and a short position in a put option held by the equity holder. For taking this short position, the holder of a subordinated CMBS is paid a premium yield. By the very nature of that short put position, a component of the subordinated holder's return will be directly tied to the fluctuations or volatility in the value of the underlying real estate.



- If the duration of the assets (leases) is greater than the duration of the liabilities (debt), then an increase in interest rates will diminish the value of the assets more than the value of the liabilities, thus decreasing the net value of the property (neglecting the impact of rising interest rates on the option to releases, or the residual value).
- Although harder to measure with regard to private real estate, credit term structure exists just as it does in the public markets. The credit structure determines the lease credit spread and contributes to the nominal discount rate. In principle, each lease cash flow should be discounted at its unique discount rate. The lease discount rate is a composite of various risk factors, one of which is the credit spread. This spread can increase or decrease, irrespective of the level of the riskless rate or whether the rate of inflation is negative (deflation) or positive.
- Many people, not just real estate investors, expect a resurgence of inflation following record high deficits. This view may reflect wishful thinking and deeply ingrained but unexamined habits. While there is no inherent relationship between deficits and inflation in countries with independent central banks and mature capital markets, a significant bout of inflation, as unlikely as it is, cannot be ruled out. However, should runaway inflation appear, real estate investors should take no comfort. Real estate is a poor inflation hedge.



## 2. Real Estate Performance and Inflation

That real estate is an inflation hedge is an unexamined belief embraced by most real estate professionals. To question real estate's inflation hedging ability is anathema; only apostates reject an article of faith. Most real estate money managers have failed to investigate, much less question, this assumption. They, as their investors, accept real estate's so-called hedging ability as an article of faith, but Investing should be fact-based, not faith-based.

Inflation Federal Reserve bank is taking highly unusual but urgently needed measures to contain possible deflation, not inflation? Expectations and memories rule the day. Many investors remember the double digit inflation of the late 1970s and early 1980s. Whether or not they do—some have not experienced more than two downturns—just about all real estate professionals believe that high and rising government deficits lead to virulent inflation and that real estate is a strong inflation hedge. These investors would be shocked to learn that they are wrong on both counts: There is no relationship between high deficits and inflation in developed, typically low inflation economies, and, even if there were a connection, real estate would be neither a good inflation hedge nor a dependable one.

We therefore believe that it is timely to reconsider the relationships among real estate, interest rates and inflation.

What is the logical connection between real estate performance and both inflation and interest rates?

We find that the historical relationship between inflation and real estate performance is neither strong nor constant over time. In fact, there have been important periods during which there was no apparent relationship at all between real estate performance and inflation.

Furthermore, based on historical and theoretical considerations, we conclude that, *ceteris paribus*, a rise in interest rates will cause a decrease in the value of unleveraged real estate.

Nominal Treasury rates of all maturities include a real return and an inflation premium. During the early and mid-1980's, a period characterized by double-digit inflation, real returns were substantial as inflation subsided. The real riskless interest rate<sup>3</sup> in modern finance is the difference between risk-free U.S. Treasury bills and inflation.

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<sup>3</sup> The real riskless rate is defined as follows:

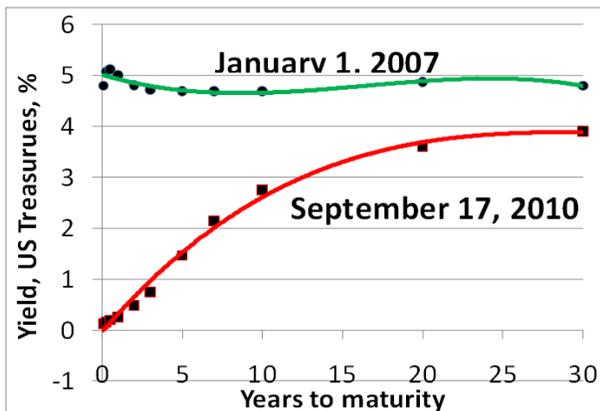
$$\text{Riskless interest rate} = (1 + R_f) / (1 + R_i) - 1, \quad (1)$$

where  $R_f$  is the total return on 30-day Treasury bills and  $R_i$  is the rate of inflation.

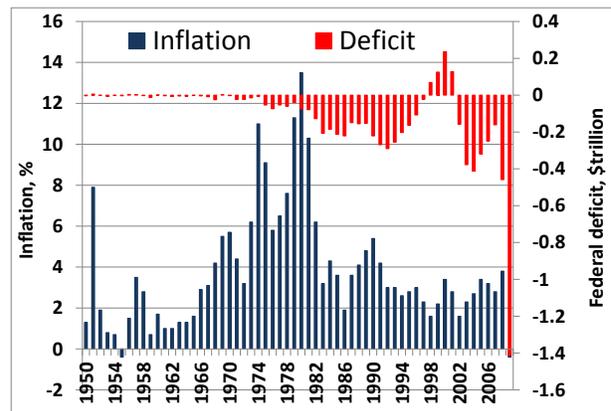
Our economy is currently in a liquidity trap.<sup>2</sup> A liquidity trap occurs when nominal interest rates are close or equal to zero and the central bank is unable to stimulate the economy through the use of normal monetary policy, such as expanding the money supply. The yield curve is now steep, reflecting aggressive monetary action taken by the Federal Reserve in an effort to prevent deflation and to close the gap between actual and potential GDP. We expect that quantitative easing will lower long term bond yields and assist in this objective. While inflation is not a near-term concern, many investors expect a bout of inflation due to the high and growing deficit. History shows no strong correlation between U.S. deficits and inflation, as shown in Exhibit 2. (The simple correlation is only 0.143 for the period, 1950 through 2009.) These investors believe that real estate will protect their portfolios. We believe they are wrong.

**A bit of history.** The late 1970s and early 1980s constituted a period of high rates of infla-

**Exhibit 1. U.S. Treasury yield curve has fallen, reflecting aggressive Fed action.**



**Exhibit 2. Deficits and inflation have no discernable relationship; the correlation is 0.143 from 1950-2009.**



tion and high interest rates. Office vacancy rates were at the lowest level in recorded real estate history. Real rents rose rapidly during this period. Long term discount rates, used to express the expected stream of cash flow as a present value, were historically high, in the 12% to 14% range. Rental growth rates were commensurably robust. Expected rental growth was sufficiently strong that some trophy CBD properties (e.g., the then Pan Am building, now the Met Life Building in New York City) sold in 1981 at free-and-clear (of debt) current yields of approximately 4%, implying long-term (perpetual!) expected appreciation of 8% to 10% per year.

<sup>2</sup>The fourth issue of **Zisler Capital Views**, "Scylla and Charybdis: Navigating a Liquidity Trap", September 23, 2010.



These above-average returns were clearly not sustainable. Asset prices increased rapidly and signaled the beginning of history’s largest commercial building boom. Vacancy rates began to climb rapidly. Despite the rise in vacancies, by late 1983, vacancies were still not much above their long term equilibrium level. With the general economic recovery in 1983, asset prices surged and total returns buoyed upward. By the mid-1980s and continuing through 1989, construction starts proceeded virtually unimpeded, pushing vacancy rates further and depressing nominal total rates of return. During the mid-1980s, inflation and nominal total rates of return displayed a negligible correlation. By the late 1980s and early 1990s, office construction collapsed and total nominal office property returns were negative. Vacancy rates remained in the double-digit range from 1983 onward. Inflation, however, remained low during the latter half of the 1980s and even declined during the early 1990s. Thus, once again, there was an apparent correlation with inflation, but this time in a falling office real estate property market.

Inflation-adjusted total office property returns typically show a strong inverse correlation with vacancy rates. This is exactly the kind of relationship one would expect if total asset returns are driven primarily by leasing market conditions.

**More recent history.** Exhibit 3 shows total returns, office vacancy rates, and inflation since

**Exhibit 3. There is no consistent relationship between inflation and real estate returns**



through 2009.

Source: Zisler Capital Associates, LLC; NCREIF; CB Econometrics



The only time when inflation and total returns exhibit a strong a positive return is during the period 2008 through 2009, a period of credit crisis, falling and negative property returns, and deflation!

The highly correlated decline during 2008-2009 in property returns and inflation, largely due to the credit crisis, is noteworthy. Declining real estate operating performance was a lagged response to the deep balance sheet recession.

Although real total returns have recently been very negative, they are now improving in some markets as credit and liquidity spreads compress. (We are concerned that in certain markets we are experiencing a bubble within a crash, a point of view we plan to explore in the near future.) The recent, but nascent, signs of improvement derive from draconian (and largely completed) asset price declines, virtually no new construction, and slowly improving leasing conditions (as measured by employment and space absorption gains).

During the entire history of the NCREIF Property Index, property returns and inflation correlations were never as positive as they have been during the 2008-2009 period, exactly the time when investors should have prayed that real estate was not an inflation hedge. In a fantasy world, real estate returns would have increased as the rate of inflation plummeted. Instead, real estate returns and inflation were positively correlated.

The period 1992-2009 is important for two reasons.<sup>3</sup> First, total property returns were generally positive, with the exceptions of the periods 1992-1992 and 2008-2009. Second, the New Age of REITs, dominated by the UPREITs, and CMBS both appear during the early to mid-1990. During this period, the public capital markets recapitalized the real estate sector and transactions volume reached record levels.

So, how strong is the relationship between nominal real estate returns and inflation since 1991? Exhibit 4 shows that the relationship between inflation and total property returns is approximately zero (and somewhat negative) if we exclude the credit crisis. The correlation increases and appears significant if we include the credit crisis period, as shown in Exhibit 5. Investors should take little solace in the higher and anomalous correlation, because, during the crash, the correlation of all assets, save U.S. Treasuries, approached 1.0, or very high positive correlation.

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<sup>3</sup> Randy wrote a paper at Nomura Securities International, Inc. in April of 1994: "Real Estate, Inflation, and Interest Rates". The conclusions of that paper agree with the conclusions we draw in this paper for the period, 1991 through 2009. We draw upon some of the concepts of the 1994 paper.



**Exhibit 4. Correlation 1991 - 2007**

	Aggregate Vacancy Rate	Inflation	Property Total Return
Aggregate Vacancy Rate	1.000		
Inflation	0.033	1.000	
Property Total Return	-0.558	-0.045	1.000

**Exhibit 5. Correlation 1991 - 2009**

	Aggregate Vacancy Rate	Inflation	Property Total Return
Aggregate Vacancy Rate	1.000		
Inflation	-0.278	1.000	
Property Total Return	-0.705	0.471	1.000

A good inflation hedge's returns should be positively correlated with inflation. Average correlations are not stable over time, as shown in Exhibit 6. This exhibit demonstrates that the correlation between inflation and real estate, represented by property (NCREIF) and publicly traded equity REITs (NAREIT), is variable and, hence, not reliably positive or negative.<sup>4</sup>

**Exhibit 6. Real estate is not a good inflation hedge.**



Source: Zisler Capital Associates, LLC; NCREIF; NAREIT

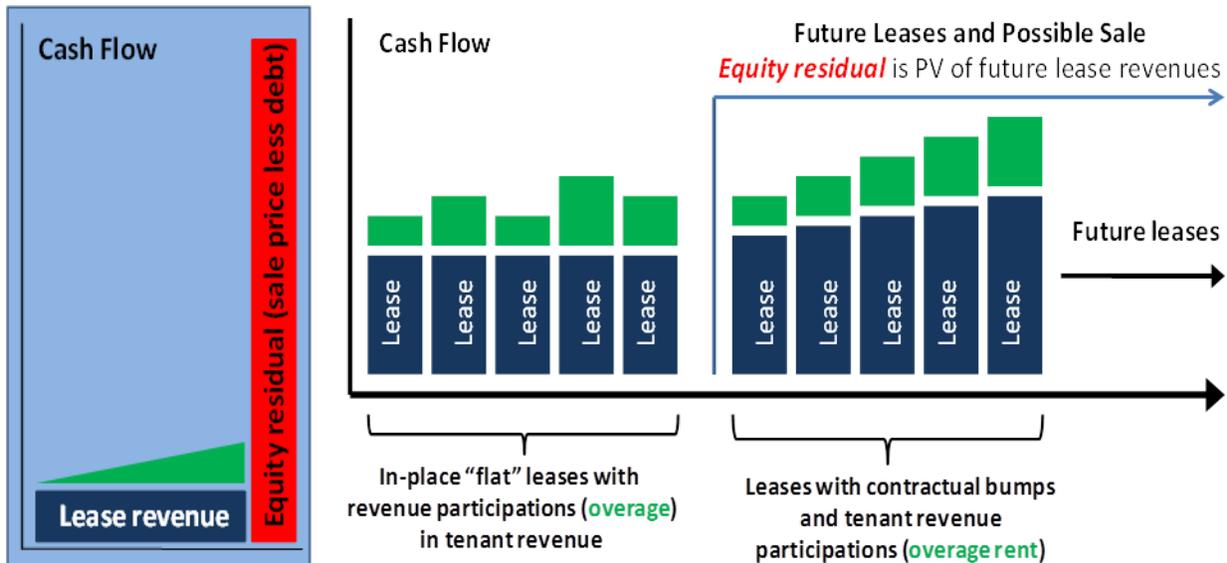
<sup>4</sup> During the period 1979-84, nominal real estate returns and inflation exhibited nearly a 0.4 correlation, a positive but not especially strong relationship. This period was one of exceptional leasing tightness for all property types and strong property appreciation. Inflation was rising. Inflation and real estate exhibit a slightly stronger correlation during the 1987-92 and 1988-93 periods during which real estate markets are historically weak and inflation is declining. The intervening years, 1982 through 1990, produce a slightly negative or negligible correlation between real estate performance and inflation. Vacancy rates in many property sectors and locations were rising during this period, and current property yields were declining as record levels of domestic and foreign capital flowed into the commercial property sector.

### 3. Real Estate Performance and Interest Rates

This section discusses the subtle relationship between the demand and supply factors governing the leasing and capital markets, both of which are characterized by complex leads and lags. Whereas the capital markets act promptly, the leasing markets may take months or years to react to changes in interest rates, prices and capital rationing.

Tenanted properties derive their value from in-place and future leases. Leases are like bonds; and the prices of bonds decline when interest rates rise. A multi-tenanted property is essentially a portfolio of fixed income-like instruments, called leases, and an equity like security whose value is determined by expectations of future lease income, market volatility, and other factors, as shown in Exhibit 7.

**Exhibit 7. Property consists of a bundle of bonds and equity.**



The owner has the right to lease vacant space, now and in the future, and extend or modify existing leases. The owner holds a basket of complex options whose value responds to market volatility. The greater the volatility, the greater is the embedded option value. To the extent that high growth markets are also high volatility markets—and this is not necessarily the case—the so-called exit cap rate will be lower. This phenomenon is related in part to the embedded lease options as well as the expected market rate in relation to the lease rate of expiring leases.

The equity, as shown above consists of two parts. First, in each year there is value derived from the possibility, not the certainty, that operating income may change. Second, the property has additional value from the expectation of income from future leases. Buildings with high occupancy rates typically have leases with a range of “laddered” expirations. The present value of these leases may account for most of the value of the property, depending on the average remaining lease maturities. When nominal interest rates increase, lease values decline.



Now, it is also possible that the risk free rate and the inflation premium both fall but lease credit spreads widen due to a weak economy. To the extent that nominal interest rates and expected long-term rental growth rates are positively correlated, a rise in interest rates should have less negative impact on the value of the property's equity. Of course, the impact will be greater the longer the duration of the leases. The equity is more valuable when expected lease expirations occur at a time when contract effective rents are below the expected prevailing market rental rate. This usually occurs during periods of tight supply.

In the case of leverage, debt is a liability. The borrower is short a bond. If the duration of this bond is less than the duration of the embedded leases, then an increase in the nominal interest rate will diminish the value of the leases more than the value of the debt. Thus, ignoring the change in the value of the equity, the net value of the building would decline, especially to the extent that the leverage was variable or short-term debt, whose duration is effectively zero.

During the 1980s, many properties contained below-market leases. Near-term expirations resulted in substantial increases in net operating income. Thus, a rise in nominal interest rates hurt property performance but the damage was masked and largely offset by rising net property income and property prices. This surge in asset prices coincidentally occurred as economy-wide prices hit record highs and vacancy rates were low or falling. Toward the end of the 1980s and the beginning of the 1990s, the equity portion of real estate declined precipitously due to weak property markets brought on by oversupply of space. A building with AAA-rated (i.e., low default probability) tenants and plenty of lease term remaining was a highly prized asset even though widening bid-ask spreads and increasing liquidity premiums damaged even these stalwart properties. Existing leases accounted for a larger and growing share of declining property value. Even with the sharp drop in nominal interest rates, the gain in value of the existing AAA leases could not offset the drop in the equity component of the real estate. Credit spreads opened dramatically for less credit worthy tenants. Thus, the value of the in-place leases and equity cratered.

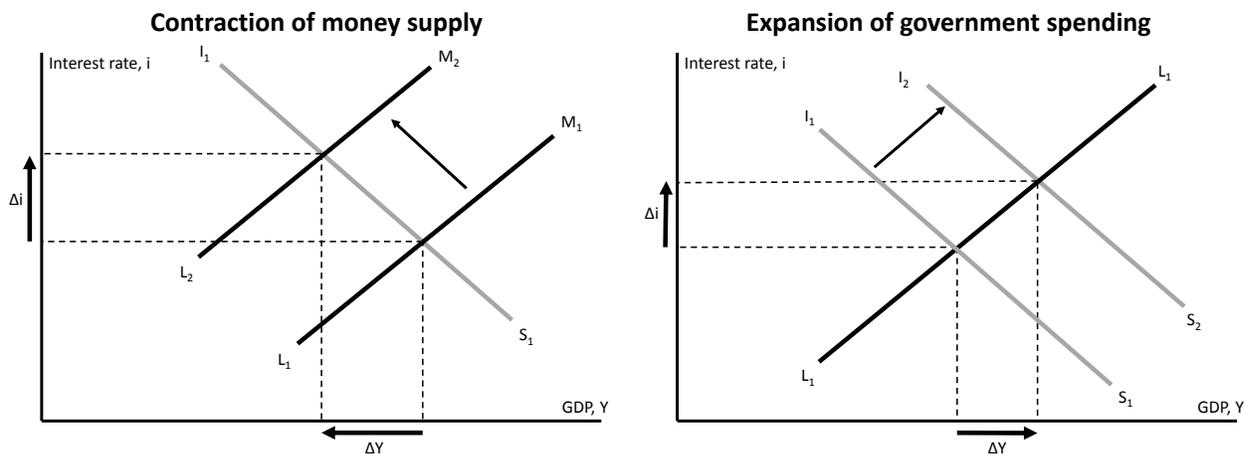
During the 2003-2007 period, cap rates and bid ask spreads fell dramatically and the risk premium shrank. In early 2007, many lenders charged the same spread for recourse and non-recourse mortgages. The put option, essentially an insurance policy, was free. During the 2003-2007 period, the correlation between property returns (rising) and inflation (falling) was negative.

Whether property returns are rising or falling, one would expect that rising interest rates by themselves should decrease the value of in-place leases, provided that the spread of lease rates over Treasuries does not narrow. However, if rates rise at a time when leasing fundamentals are improving and asset prices are strengthening, then a reduction in the risk premium, as expressed in the lease credit spread, could partially offset the price-depressing effect of a rise in nominal interest rates.

Interest rates may rise either in an expanding or contracting economy irrespective of the behavior of the leasing market. If the Fed contracts the money supply in an attempt to restrain inflation, employment falls and interest rates rise in the short-run, as shown below in Exhibit 8. Thus, along with an increase in real rates, a reduction in GDP will reduce employment, erode tenant credit quality, and increase spreads, with a lag. The rise in the discount rate used to express future cash flows as a present value may rise even more than Treasury rates. However, if rates rise, for example, due to increased government spending and crowding out of private investment, as shown in Exhibit 9, strengthened tenant credit quality and improved prospects for future leasing improvement will reduce the risk premium or credit spread associated with nominal rates, thus benefiting real estate equity and junior debt holders. Following additional stimulus, either through government spending or expansionary monetary policy, the economy demand curve shifts out along a rising supply curve. As the economy approaches full capacity, as shown in Exhibit 10, the rate of inflation increases with each increment of GDP. This is not a foregone

**Exhibit 8. A contraction of the money supply decreases GDP and increases interest rates.**

**Exhibit 9. An increase in government spending increases GDP and increases interest rates.**



<sup>5</sup> Figures 8 and 9 employ the Hicks-Hanson IS-LM framework to evaluate the real estate implications of a macroeconomic shift. The IS curve represents the goods and services sector and is derived from the following equation:

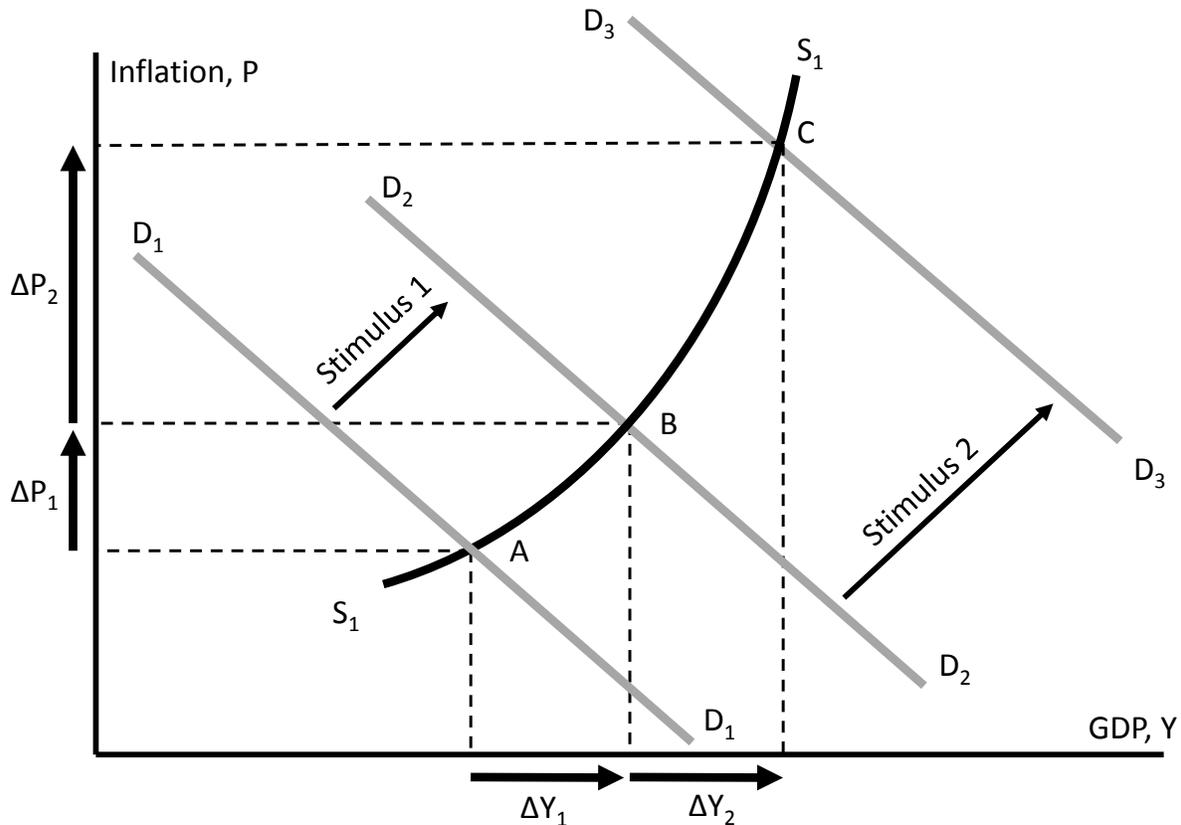
$$GNP = CON[ GNP - TAX [ GNP ] ] + INV [ I , GNP ] + GOV + EXPORT - IMPORT$$

where CON[ ] is the consumption function. CON is a function of disposable income,  $GNP - TAX$ . INV [ ] is the investment function and it is a function of the nominal interest rate (with credit spread) and income or GNP. The LM curve defines all combinations of interest rates and income within the monetary sector:

$$M/P = L [ I ] + K [ GNP ]$$

where M/P is the nominal money supply deflated by the price level, P. L [ ] is the speculative demand for money. When interest rates are very low, as they are today, cash and bonds become near-substitutes or essentially equivalent, thus encouraging cash hoarding. When rates are high, households and firms face a high opportunity cost of holding cash and they therefore economize on their cash holdings. K [ ] is the transactions demand for cash. When GNP increases, greater transactions volume requires more cash in circulation or “economic grease”.

**Exhibit 10. The economy-wide supply and demand curve. Expansionary policy will increase the price index to the extent that the economy operates close to full capacity.**



conclusion, since the outcome reflects joint discipline by the Fed and the Congress/Executive.

Macroeconomic factors affect cash flow, inflation, and the discount rate. Value of the property is defined as the sum of all future cash flows (including any final proceeds of sale) discounted to the present. The discount rate, or internal rate of return, equals the appropriate real Treasury rate,  $i_i$ , plus a risk premium associated with the property,  $\delta$ , plus an inflation risk premium,  $\rho$ .

$$VALUE = \sum_{i=1}^T \frac{CF_i}{(1 + i_i + \delta + \rho)^i}$$

( $CF_T$  represents the proceeds from the property sale.) Cash flows grow from an initial level of  $CF_0 * (1 + \mu)^i$ , where  $i = 0$ . Property value is expressed more compactly as follows:

$$VALUE = \sum_{i=1}^T \frac{CF_0 * (1 + \mu)^i}{(1 + i_i + \delta + \rho)^i}$$



In general, inflation,  $\rho$ , will differ from the rate at which cash flows grow,  $\mu$ .

$$\mu \Leftrightarrow i_T + \delta + \rho$$

If spreads remain constant and cash flows increase faster than inflation, ( $\mu > \delta$ ), property value will increase. In addition, if property growth tracks inflation, but spreads narrow, property value will increase.

If the yield curve shifts upward due to stronger economic growth, thus stimulating leasing and improving tenant credit quality, then  $i_T$  increases and  $\delta$  decreases. Depending on the extent to which there is excess capacity in the general economy, the inflation rate,  $\rho$ , will increase at a rate approaching or even exceeding the rate at which cash flows grow.

Cash flows can change either through a change in rents or expenses. To the extent that expenses are reduced, the operating break-even point declines and  $\delta$  falls. Thus,  $\delta$  can fall even if leasing markets do not materially improve. If investor uncertainty regarding property markets or tenants declines,  $\delta$  will fall even if vacancy rates remain high.

Even though rates rise, declining property IRR or discount rate spreads might partially offset the rate rise. When a tenant leases space, the tenant in effect is borrowing at some spread above Treasuries. This spread varies depending on the credit-worthiness of the tenant and factors specific to the property market. When the economy is weak, business failures are widespread, property markets are fragile, and spreads are wide, as they are today.

While rates can rise, which is immediately negative for real estate, the narrowing of spreads will likely occur gradually and will partially (or even fully) offset the effects of the rate increase. If spreads returned to their long term equilibrium levels, then such a dramatic decline in spreads, even within an increase in cash flow growth rates, could fully offset even a substantial increase in long term real interest rates or inflation. The combinations and permutations of these valuation parameters are many as shown in Exhibit 11. For example, Treasury yields can rise or fall in a declining property market as can general inflation.

**Exhibit 11. Valuation parameters for three market environments**

	Three Real Estate Investment Climates		
	Declining	Stable	Growing
Treasury rates, $i_T$	↓↑	↓↑	↓↑
Tenant risk premium, $\delta$	↑	↓↑	↓
General inflation, $\rho$	↓↑	↓↑	↓↑
Growth in cash flow, $\mu$	↓	No change	↑



Real estate is a hybrid asset. An important implication of Exhibit 11 is that the value of the leases and the equity need not move together. For example, in a declining real estate investment climate, cash flows are declining. Eroding expected cash flow is associated with a decline in property value and an increase in property risk,  $\delta$ . However, interest rates and inflation may either be increasing or decreasing during the period.

In other words, there are various factors influencing real estate valuations, many of which can offset or overwhelm others at any given moment. The value of the equity in particular may be negatively correlated with the value of the leases, thus suppressing the volatility of total real estate returns. Other relationships in rising and falling real estate markets are possible depending on the direction of nominal interest rates, as illustrated below:

**Exhibit 12. The present value of the leases and equity may be negatively correlated, thus attenuating total return volatility.**

Case	Real estate environment	Interest Rates	PV Leases	PV Equity	Net Effect: PV of Property
A	Rising	↑	↓	↑	↓↑
B	Rising	↓	↑	↑	↑
C	Falling	↑	↓	↓	↓
D	Falling	↓	↑	↓	↓↑

Exhibit 12 shows that total unleveraged property returns are less volatile in Cases A and D because interest rates, rents (and tenant quality) move in the same direction. Cases B and C are the most volatile: property prices tend to move rapidly up or down when the leases and the equity, along with the effect of interest rates, are all pulling in the same directions. In Cases A and D, the net effect of changes in the present value of the leases and of the equity will depend on the magnitude of each of these changes.

Another way in which increasing rates can affect property values is that, depending on the expected pre-debt, pre-tax cash flow, rising rates may render a property difficult, if not impossible to finance at current prices.

#### 4. Lease duration and inflation

To the extent that leases have short durations, as in the case of hotel or apartment leases, then cash flow will adjust more promptly to changes in excess demand for space and changes in rental income. However, the relationship between changes in rental income and inflation is at best weak. Shorter leases may not be adequate protection against unanticipated inflation if changes in rental rates swamp or dominate changes in unexpected inflation. Thus, real estate performance reflects local market as well as capital market factors.



## 5. Leveraged real estate

Real estate may be financed with equity alone (unleveraged real estate) or with equity and debt. The value of unleveraged real estate and its relationship to interest rates, is, as mentioned above, determined by the leases. When real estate is leveraged with debt, any change in property value with respect to interest rates will depend on how closely the cash flow payments of the debt match the anticipated lease cash flows. If they roughly match, the leveraged real estate is less sensitive to changes in interest rates. If lease credit spreads are wide, then lease valuation may be much less sensitive to changes in interest rates than the debt itself.

Thus, if property is leveraged, then the leverage itself can partially hedge the effects of interest rates on lease value. In essence, leverage is a short debt position. If the borrower's payments roughly match the anticipated lease cash flows, then what remains is just the equity.

Unfortunately, many owners have acted like banks. While the owners do not accept checking deposits or hand out toasters to new customers, owners typically suffer from wildly mismatched asset-liability durations and limited liquidity reserves to absorb financial shocks. Over the last five years, many owners have relied on floating debt (zero duration) to fund long term assets (e.g., buildings with long duration leases). These owners, nominally in the real estate business, were in the interest rate forecasting business instead.

## 6. Risk Analysis

Most owners are unaware of their risk exposure or the kinds of risks that they should bear or shed. As a general rule, most owners and developers, especially private firms, should shed risks which they neither understand or which they cannot effectively manage. Inflation and interest rate risks are prominent examples. Due to high leverage and extreme asset-liability mismatch, many developers and owners are essentially in the interest rate betting business. Interest rate risks swamp most risks they face from real estate alone.

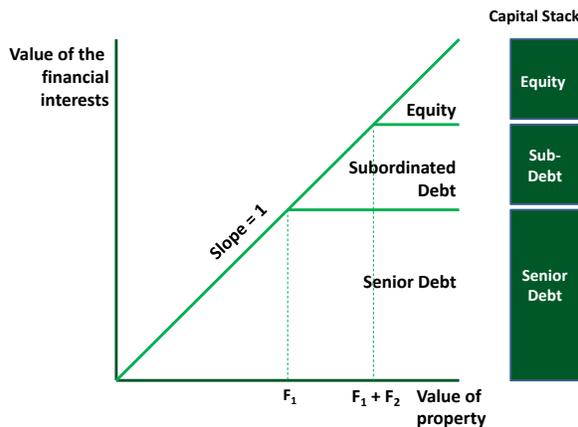
Owners often do not appreciate that leases are bond substitutes. Many of the bond analytic tools are useful (with modification) in the analysis of leases and portfolios of leases. Without the appropriate risk analysis tools, however, the owner is flying blind and is liable to crash when real estate and credit markets fail. (We will discuss the application of these tools in future issues of Zisler Capital Views.)

## 7. The Capital Stack and the Value of Subordinated Debt

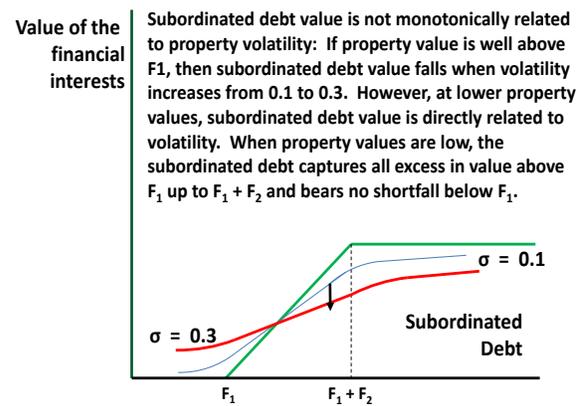
The value of subordinate debt is inversely related to interest rates. Senior debt is usually unaffected by any increases in real estate values, the recent few years notwithstanding. For senior class holders, the entire question of inflation and its impact on real estate values is essentially moot. (However, senior debt will suffer should nominal interest rates, which include a spread for expected inflation, rise.)

However, as described earlier, lower-rated, or subordinated CMBS or subordinate mortgages, can be viewed as an investment in credit risk free bonds and a short position in a put option held by the equity holder, where in return for paying the debt holder a coupon rate above the riskless rate the equity holder can put the real estate asset back to the debt holder. Another factor is volatility. To the extent that inflation increases volatility, increased volatility will affect the value of subordinate debt, as shown below.

**Exhibit 13. The capital stack includes equity, subordinate debt, and senior debt.**



**Exhibit 14. The risk attributes of subordinate debt are different compared to that of senior debt.**



The equity holder will exercise the put option when the value of the real estate equity drops to a level where the debt balance exceeds the property's value. The value of the short put position will decrease as the real estate's value increases. As a result, while the value of the subordinated or lower-rated CMBS generally decreases as interest rates increase, just as all fixed income securities do, these securities will increase in value as the earnings quality of the asset improves.

## 8. Deficits, Inflation, and Interest Rates

Many people, not just real estate investors, expect a painful bout of inflation following record high deficits. Their latest investments are in some cases consistent with these expectations.

However, most leading macroeconomists believe that budget deficits are not inherently inflationary. The supporting evidence is most credible in the case of countries, such as the U.S., with independent central banks and sustained records of moderate inflation. Developing countries sometimes resort to "printing money" in order to raise government revenues through the inflation tax. In low inflation countries there is no significant link between deficits and inflation.



However, one might protest that the very high U.S. inflation in the late 1970s demonstrates that investors cannot trust the central bank. We disagree. The Volker recession in the early 1980s proved that the Federal Reserve had the tools and the will to drain the life blood from inflation, albeit at cost of considerable short-term hardship.

The best support for the harbingers of high inflation is not historical; it is political and psychological: Once the gap between actual and potential GDP narrows and labor markets tighten, will the Fed (and the Congress) demonstrate the will to wield its anti-inflation tools effectively? We believe it will. Our Fed, which is an independent central bank, has already demonstrated that it is capable of taking necessary and at times unorthodox measures.

However, what if Matt and I are wrong? Let's say that we escape a ruinous deflation only to find ourselves in the crushing grip of persistently high inflation? Should we take comfort that we are real estate investors? This paper says, no. Real estate is not a good, much less dependable, inflation hedge.

Even if we cannot navigate between Scylla and Charybdis, cave dwelling confers little protection.

## 9. Conclusion

Real estate's inflation hedging performance has been neither strong nor constant over the real estate cycle. The correlation between inflation and property performance has fluctuated from slightly negative to moderately positive. That real estate did well during these early years has little to do with inflation and a great deal to do with the dynamics of the leasing market.

Inflation hurts real estate performance in over-supplied leasing markets since in-place leases are worth less as nominal interest rates rise with little, if any, offsetting increase in rental growth. Interest rates may rise either in an expanding or contracting economy irrespective of the behavior of the leasing market. However, whether or not property returns are rising or falling, rising interest rates, by themselves, should decrease the value of in-place leases, provided that the spread of lease rates over Treasuries (due to credit spread tightening) does not narrow.



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**Zisler Capital Views** is a research service of Encore Enterprises, Inc., that focuses on critical issues at the nexus of real estate capital markets, corporate finance, structured finance, and portfolio strategy. Our research is all about critical ideas for curious and thoughtful investors.

**Why are we writing Zisler Capital Views?** We believe that most (but not all) real estate research is either parochial, self-serving, bland, or just wrong-headed: (1) “Parochial” because much real estate research fails to look past the real estate sector and assess complex linkages affecting value and risk; (2) “self-serving” because some companies, which lack the long view, believe that uncompromising objectivity may be bad for business; (3) “bland” because some sponsors prefer “safe” or “so what” research rather than the alternative, which may be inconvenient or controversial; and (4) “wrong-headed” because much research fails to blend practice with the best that academia offers. However, the main reason we write Zisler Capital Views is, well, we just like to write and because we believe we have something important to say. We hope you agree.

**Randall Zisler and Matthew Zisler** have extensive experience in structured finance, research, derivatives, portfolio strategy, and real estate finance at leading global investment banks. The authors have advised some of the largest pension funds, institutions, corporations and developers, raised and managed (successfully) pension fund capital, structured complicated debt and equity transactions, and participated in REIT IPOs and CMBS issuance. Randy was a professor at Princeton University and has held senior positions at Goldman Sachs, Nomura Securities, Pension Consulting Alliance, and Jones Lang LaSalle. He has advised high net worth individuals including Marvin Davis and Merv Griffin.

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